

Notes on *Tarucus bowkeri* (Trimen) (Lepidoptera:
Lycaenidae), with a description of a New
Subspecies

By C. D. QUICKELBERGE
East London Museum

Discovered by J. H. Bowker in 1881 near Inchanga, Natal, this interesting "blue" has generally been considered local and uncommon. Although its classic habitat is the uplands of Natal, it has only comparatively recently been found to have a much wider distribution in South Africa, ranging from the far northern parts of the Transvaal and down along its eastern escarpment, then on through Natal, finally reaching as far south as Port St. Johns in the eastern Cape Province. The most recent discovery of *T. bowkeri* by C. W. Wykeham in December 1970, on the Blaauwberg Mountains about 170 miles further north of its nearest known Transvaal locality on the Drakensberg mountain range, came as a great surprise. This is because the intervening country between the Drakensberg and Blaauwberg is unsuitable to the species and, although the Blaauwberg and the nearby Zoutpansberg mountains are at present isolated ranges, this discovery gives every indication of former links between these and the Drakensberg escarpment of the eastern Transvaal along which *bowkeri* occurs.

However, our present knowledge of its entire distribution is still rather sketchy and its known localities are few and far between. Even in well-known spots the species cannot always be relied upon to show itself. Certain unfavourable seasons seem to reduce populations of colonies to such low levels that the collector sometimes fails to locate specimens.

From information gathered a somewhat clear picture of the ecological requirements of *T. bowkeri* has emerged. Some altitude (perhaps only well above 1,000' a.s.l.), rather precipitous, rocky ground and some proximity to forests appear to constitute the most favoured habitat. Here it may be found singly and flying about at random, attracted to flowers growing amongst the herbage or between rocks. According to Mr C. G. C. Dickson (in litt.) *bowkeri* does not stray far from its foodplant; at least this was his experience with the species near Inchanga. Generally considered only to occur about inland spots, it came as an interesting surprise when in September 1964 the author found *bowkeri* on the summits of the high cliffs at Port St. Johns situated within a mile or two of the sea. However, this area is unusual in that other species normally only associated with inland mountainous areas also occur here, such as *Papilio euphranor* Trimen and *Charaxes riphares* (Cramer). A possible explanation accounting for this phenomenon lies in the existence of a high-lying area of ground, referred to as the Pondoland coastal plateau, which

projects right down to the coast at Port St. Johns. The eventual linking up of this fairly high table-land with more elevated mountain chains of the interior, has no doubt enabled such inland butterfly species to so closely approach the sea at this point.

T. bowkeri is multi-brooded and so has a prolonged flight period, extending practically throughout the year, but doubtless occurring in lesser numbers during the colder months.

The early stages of *T. bowkeri* have been well documented by Clark and Dickson (1971) in their monumental work "Life Histories of the South African Lycaenid butterflies."

Tarcus bowkeri transvaalensis SSP. NOVA

Lycaena bowkeri Trimen. Trans. Ent. Soc. Lond., 1883: 351.

Material

Holotype: Male, Kawyn's Pass, Graskop, Transvaal, 26 December, 1970 (J. C. McMaster).

Allotype: Female, Kawyn's Pass, Graskop, Transvaal, 26 December, 1970 (J. C. McMaster).

Paratypes: 7 males and 4 females, of which 5 males and 3 females are from the type-locality, collected 19/12/63 and 26/12/1970, and one male and one female from the Blaauwberg, Transvaal 12/12/1970. The remaining male was caught by Mr K. M. Pennington at Mnt. Sheba, Transvaal on 3/2/1968.

The holo- and allo-types are in the Transvaal Museum's collection, while 4 male and 2 female paratypes (also topotypes) are in Mr W. Henning's collection. A further pair of topotypes is in Mr McMaster's collection, while the Mnt. Sheba male is in Mr Pennington's collection.

Description

Holotype: Upperside blue more extensive and saturated than in the nominate subspecies; also rather purer in hue, less tinged with violaceous. Blue areas of wings are immaculate except for marginal markings and slightly darkened veins whereas in the nominate race there are some specimens displaying a varying development of discal spotting, while dark markings closing the cells of each wing are a constant feature of all specimens. Veins not quite as clearly demarcated as in nominate *bowkeri* and the underside colouring is colder. Underside markings show through wings.

UpFw.: Blue covers nearly the entire wing surface except for a narrow hind-marginal blackish edging which is irregular and narrowing at veins. This border, hardly a millimetre in width *T. b. transvaalensis*, is generally about twice as wide in *T. b. bowkeri*. Cilia checkered with white in the internervular spaces. No dark spot closing the cell as in *T. b. bowkeri*.

UpHw.: Blue covers most of the wing area except for the inner margin and costa, these parts being dusky

but liberally dusted with greyish-white on inner-margin. Hind-marginal dusky spots are present in areas 1c to 6 of which the largest and darkest is in area 2. Except for the cilia, no sign of white markings on the wing, whereas in most specimens of *T. b. bowkeri* there is a white irregular marking on the margin of area 7 and sometimes an indistinct similar one in the same position in area 6. In addition most of the specimens have all or some of the marginal spots in areas 1 to 3 variously bounded with white.

Short white-tipped tail at end of vein 2. No spot closing the cell.

Underside: As in nominate subspecies but the creamy ground colour is lighter, almost white, while the spots are distinctly greyer, not so warmly brownish-tinged.

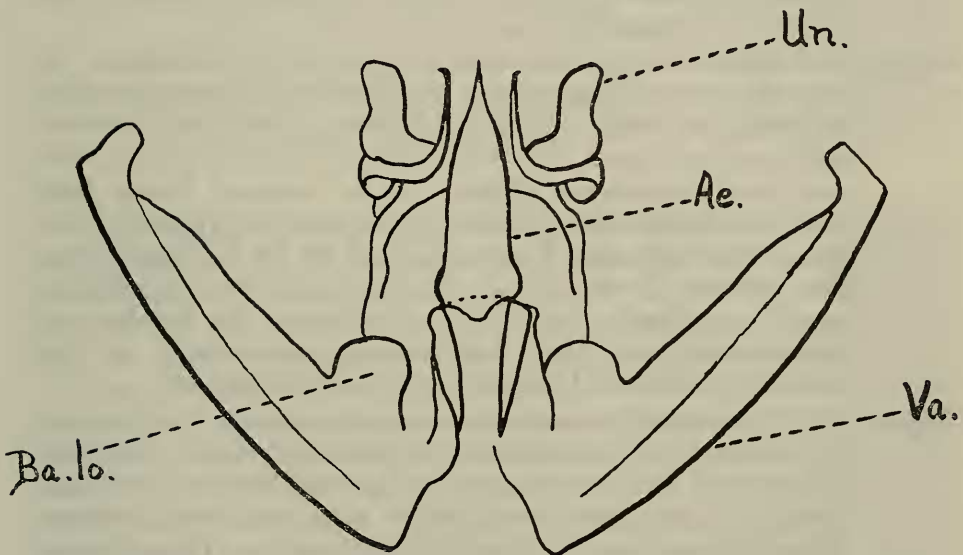


Fig. 1. Male genitalia of *Tarcus bowkeri bowkeri* from the type-locality

Allotype.: As in the male, upperside blue is also more extensive, saturated and less violaceous-tinged than in nominate subspecies. Less discal white marking on *Fw.* than in *T. b. bowkeri* but none at all on *Hw.* in *transvaalensis*.

UpFw.: Ground colour bluish, whereas in *T. b. bowkeri* the ground colour is white. White quadrate markings limited to areas bounding the dusky discal band of contiguous spots. Although there are whitish streaks on the costa the main areas of white are reduced to about 4 spots, 3 on the distal side of the discal band in areas 4-6, and 2 on the proximal sides of the 5th and 6th discal spots. Except for the white spot on the proximal side of the 5th discal spot, the rest of the white markings are small and indistinct. In some paratypes these are larger and clearer but there is considerable varia-

tion. There is a broad hind-marginal dark border on which an indistinct row of spots is made more noticeable by being bounded proximally with blue lunular markings. A large dusky or blackish spot closes the cell. Cilia as in male.

UpHw.: Same as in *T. b. bowkeri* except that there are no white markings other than the cilia and the blue covers all the wing surface except beyond area 5 which is dusky, also the inner marginal area which is mostly hoary-grey. The difference mentioned in blue shading also, of course, applies here.

Underside: The differences separating the males of the two subspecies of *T. bowkeri* as listed in this description also apply to the females with respect to underside colouration.

Paratypes: In males there is little to no variation while that in the females is limited mainly to the extent and size of the white markings.

Habits and distribution: According to Mr Ken Pennington (*in litt.*) there would appear to be no substantial differences in habits or choice of habitat between nominate *bowkeri* and *transvaalensis*. Further, Pennington states that this northern subspecies occurs on the tops of rocky hills and mountains along the Drakensberg escarpment from about Graskop and Pilgrim's Rest up to Mariepskop in the eastern Transvaal. Being local, its distribution would, no doubt, be largely disjunct. Its further reappearance on the Blaauwberg mountain in the northern Transvaal has already been discussed.

Remarks: This is a well-marked subspecies and the differences in the available material are quite constant. On dissection, of a limited number of specimens (1 *transvaalensis* and 3 *bowkeri*), there were no readily observable differences in the male genitalia. This finding was confirmed by Mr C. G. C. Dickson.

Material of *T. bowkeri bowkeri* available for comparison emanated from Port St Johns, the type-locality, Garden Castle, Game Pass and Balcomb's Hill, all except the first mentioned being situated in Natal. Altogether there were 14 males and 12 females; thus the total number of specimens of *T. bowkeri* available for study amounted to 21 males and 16 females.

One remarkable feature of the males of *bowkeri* from the type-locality, Inchanga, is the apparent constant possession on *UpHw.* of a transverse arc of 4 mid-discal, dusky spots in areas 2 to 5. No other known population of this species shares this character and it would have been tempting to regard this as another subspecies were it not for evidence of some instability in upperside discal spotting. For example the type-specimen(s) described by Trimen apparently lack(s) these 4 discal *Hw.* spots as his 1887 description makes no

mention of this feature. It is hardly likely that an astute observer like Trimen could have missed such an obvious character. Then too at least one Port St. Johns male shows incipient upperside discal spotting, even on the *Fw*.

The possibility exists that the original specimens described by Trimen were not taken at precisely the same spot from which subsequent collectors have obtained their material when attempting to collect at the type-locality. Should this be true it would make the population containing males with *UpHw*. spots even more unusual and restricted in range.

Finally, as a further argument against this form being recognised as a subspecies it must be pointed out that the variation it displays does not accord with the general pattern of geographical variation as outlined in this paper. For the present then, this population, inhabiting the flat-topped mountain overlooking the Inchanga Valley, must be dismissed as a local aberrant form or mutant, no doubt maintaining its genetic integrity through isolation from normal populations.

Note

During the course of this study the question of the affinity of *T. bowkeri* to its nearest ally, *T. thespis* (Linnaeus) had, as a matter of routine, to be considered. Examination of facies and the male genitalia led to the conclusion that the two species are more closely related than is perhaps realised and if it was not for the fact that there are no differences in the genitalia, between the two obvious subspecies *bowkeri* and *transvaalensis*, I would have regarded *T. thespis* as only sub-specifically distinct from *T. bowkeri*, as the genital differences are not at all striking. Thus it appears that the genitalia are very stable and that the differences between these two species although small, are of sufficient magnitude in this case to warrant their recognition as different species. As a matter of interest, and seeing the genitalia of *bowkeri* have apparently not as yet been examined and compared with those of *thespis* (apart from a brief diagnosis by Murray (1944)), I give the following account (see also illustration):—

1. The most obvious difference lies in the uncus which in *bowkeri* is consistently broader than in *thespis*.
2. The *aedeagus* is differently tapered in that the thin apical section is longer in *thespis* due to a narrowing further from the apex than in *bowkeri*.
3. There are differences in the structural formation about the basal parts of the valve. The most easily seen difference in *bowkeri* is a large conspicuous lobe in these parts which in *thespis* is much smaller and more weakly developed. This could be homologous with the *tectorius* or *virgae excitatae* (*vide* Stempffer, 1967) but this is open to question.

Abbreviations

UpFw. and *UpHw.* = uppersides of fore- and hind-wings. *Hw.* = hind-wing. *Fw.* = fore-wing.

Acknowledgments

My grateful thanks go to the following people who were kind enough to forward specimens on loan: — Messrs K. M. Pennington, C. G. C. Dickson, C. W. Wykeham, W. Henning, and J. C. McMaster.

I must also thank Mr C. G. C. Dickson of Cape Town for his generosity in allowing me to do the present revision as we had both independently come to the conclusion that two taxa existed among the extant material of *T. bowkeri*. Mr Dickson must also be thanked for reading and criticising the MS.

Literature References

- Clark, G. C. and Dickson, C. G. C. 1971. *Life histories of the South African Lycaenid butterflies*. Cape Town.
 Murray, Desmond 1944. *J. ent. Soc. S. Afr.* VII: 82-95, figs.
 Stempffer, H. 1967. *The genera of the African Lycaenidae*. Bull. Brit. Museum (Nat. Hist.) Suppl. 10: 212-16.
 Trimen, R. 1887 *South African butterflies*. Vol. II: 88-90. London

Designation of a Lectotype for *Erebia youngi* Holland

BY CYRIL F. DOS PASSOS¹ LL.B., D.Sc., F. R. E. S.

My friend, Mr B. C. S. Warren, in a recent paper (1969, 31:201) published in this journal, has suggested the designation of a lectotype for *Erebia youngi* Holland, 1900, and shown the necessity therefor. This is due to the fact that since the description of that species, another very similar Asiatic species, *E. dabanensis* Erschoff, 1871, has been discovered in Alaska, and there is the possibility that a third species, *E. kozhantshikovi* Sheljuzhko, 1925, may occur there also. However, the latter species is more easily distinguished from the other two on superficial characters. The first two, *dabanensis* and *youngi*, are difficult to separate by such means. Usually the genitalia must be resorted to. They also fly together at about the same time and are doubtless misidentified in many collections. It is important, therefore, to determine whether these species have been confused in Holland's type-series of *youngi*, since he never dissected any of his types. However, he was not unaware of this problem.

Holland proposed the name *Erebia youngi* in a paper (11:388) on Alaskan insects saying, "This species is not far

¹Research Associate, Department of Entomology, The American Museum of Natural History and Research Associate, Section of Insects and Spiders, Carnegie Museum